

18

Notice of Allowability	Application No.	Applicant(s)	
	10/024,272	DELPERIER ET AL.	
	Examiner	Art Unit	
	Wesley D. Markham	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the RCE and amendment filed on 3/7/2005.
2. ☒ The allowed claim(s) is/are 1,3-8,13-17 and 20-25.
3. ☒ The drawings filed on 09 August 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☒ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

WDM



EXAMINER'S AMENDMENT / ALLOWANCE

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Charles Gagnebin on 4/27/2005.

The application has been amended as follows:

In the claims:

Claims 9 – 12, 18, and 19 have been canceled.

In the declaration:

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because it does not correctly identify the foreign application for patent or inventor's certificate on which priority is claimed pursuant to 37 CFR 1.55, and any foreign application having a filing date before that of the application on which priority is claimed, by correctly specifying the application number, country, day, month and year of its filing.

Art Unit: 1762

Specifically, the priority date on the declaration was incorrectly identified as 19/12/01 (December 19, 2001) instead of 19/12/00 (December 19, 2000).

Applicant is now required to submit a substitute declaration or oath to correct the deficiencies set forth above. The substitute oath or declaration must be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability" (PTO-37). Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136. Failure to timely file the substitute declaration (or oath) will result in **ABANDONMENT** of the application. The transmittal letter accompanying the declaration (or oath) should indicate the date of the "Notice of Allowance" (PTOL-85) and the application number in the upper right hand corner.

Allowable Subject Matter

Claims 1, 3 – 8, 13 – 17, and 20 – 25 are allowed.

The following is an examiner's statement of reasons for allowance: Independent Claims 1 and 22 are both drawn to a method of densifying one or more hollow bowl-shaped porous substrates by chemical vapor infiltration (CVI), the substrate(s) having an inside volume defined by a concave inside face and having an opposite convex outside face. The claimed method generally comprises placing the substrate(s) in an enclosure, admitting a reactive gas into the enclosure through a gas inlet, and causing the gas to flow through the enclosure between the gas inlet and an effluent gas outlet. The reactive gas flow is divided into first and second non-zero fractions, the first fraction is guided by tooling into the inside volume of the substrate so that the concave inside

Art Unit: 1762

face of the substrate is swept in full by the first fraction of the reactive gas, and the second fraction is fed to only the outside face of the substrate (Claim 1). Stated another way, a first non-zero portion, but not all, of the reactive gas flowing through the enclosure is directed by means of a tooling extending into the inside volume of the substrate such that the concave inside face of the substrate is swept in full by the first portion of the reactive gas flow, and a second non-zero portion of the reactive gas flowing through the enclosure is fed to the outside face of the substrate (Claim 22). A summary of the closest prior art of record follows. The applicant's admitted prior art (AAPA) (see Figure 11 and the corresponding description) describes a method of densifying one or more hollow bowl-shaped porous substrates by chemical vapor infiltration (CVI) by placing the substrate(s) in an enclosure, admitting a reactive gas into the enclosure through a gas inlet, and causing the gas to flow through the enclosure between the gas inlet and an effluent gas outlet. However, the AAPA does not teach or suggest guiding or directing the reactive gas (or a portion thereof) to the inside face of the substrate(s) by means of tooling so that the inside face is swept in full by the reactive gas, or a fraction thereof. Georges et al. (USPN 6,783,621) and Guirman et al. (USPN 6,837,952) both generally teach densifying hollow bowl-shaped porous substrates by CVI but fail to teach or suggest the specifics of the applicant's claimed method (e.g., the specifics of the reactive gas flow through the enclosure). Daws et al. (USPN 6,669,988) and Christin et al. (USPN 5,904,957) both teach processes of densifying annular stacks of porous substrates by CVI, the processes comprising flowing reactive gas both through the middle of the annular stacks and outside of the

Art Unit: 1762

annular stacks. However, the substrates of Daws et al. and Christin et al. are not hollow and bowl-shaped – as such, no “tooling” is used to guide the reactive gas (or a portion thereof) to the inside face of the substrate(s) so that the inside face is swept in full by the reactive gas, or a fraction thereof. Isenberg et al. (USPN 4,609,562) teaches a method comprising flowing one reactive gas into a hollow porous substrate through a pipe / inlet; flowing a second reactive gas to the outside of the substrate through a different inlet; and using the pressure gradient to diffuse the first reactive gas through the hollow porous substrate where it reacts with the second reactive gas on the other side of the substrate to form a coating. Sirtl et al. (USPN 4,194,028) teaches flowing a reactive gas into a hollow bowl-shaped substrate through a gas introduction pipe that extends into the interior volume of the substrate. However, neither Sirtl et al. nor Isenberg et al. teaches or suggests (1) dividing the reactive gas flow entering the enclosure into two non-zero fractions, the first fraction being fed to the inside face of the substrate and the second fraction being fed only to the outside face, and/or (2) directing a first non-zero portion, but not all, of the reactive gas flowing through the enclosure into the inside volume of the substrate to sweep the concave inside face in full, and feeding a second non-zero portion of the reactive gas flowing through the enclosure to the outside face of the substrate. To summarize, the prior art of record, alone or taken together, does not teach or reasonably suggest the specifics of the reactive gas flow pattern in combination with the use of “tooling” in the context of densifying one or more hollow bowl-shaped porous substrates by chemical vapor infiltration (CVI). As such,

Art Unit: 1762

Claims 1 and 22 are allowed. Claims 3 – 8, 13 – 17, 20, and 21 depend from Claim 1, and Claims 23 – 25 depend from Claim 22. As such, these claims are also allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Application/Control Number: 10/024,272
Art Unit: 1762

Page 7



WDM

Wesley D Markham
Examiner
Art Unit 1762



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER